



STATE OF TENNESSEE  
**DEPARTMENT OF ENVIRONMENT AND CONSERVATION**  
**State Revolving Fund Loan Program**  
Life & Casualty Tower, 8<sup>th</sup> Floor  
401 Church Street  
Nashville, TN 37243

**FINDING OF NO SIGNIFICANT IMPACT**  
**Approval of Facilities Plan**  
**Bon Aqua-Lyles Utility District (Hickman County), Tennessee**  
**Project Nos. DWSRF 2006-070 and DWSRF 2006-071**

**September 12, 2006**

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by the Safe Drinking Water Act (SDWA), is the approval of a facilities plan prepared pursuant to EPA 816-R-97-005, Final Guidelines. In making this determination, the State Revolving Fund Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The State's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the State Revolving Fund Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The Bon Aqua-Lyles Utility District (UD) has completed the facilities plan entitled "Engineering Report, Water System Improvements for the Bon Aqua-Lyles Utility District of Hickman County, Tennessee" dated June 2006. The facilities plan provides recommendations for two phases in order to upgrade the existing water treatment facilities serving the Bon Aqua-Lyles UD in Hickman County, Tennessee. Phase I of the water system improvements consists of upgrading the existing water treatment plant by adding membrane filtration units, replacing the existing wash water pump, and adding a new chemical feed/laboratory building. Phase II of the water system improvements consists of installing approximately 26,000 linear feet of 10-inch, 12-inch, and 16-inch water transmission lines and a 900-gallons per minute pump station in order to purchase supplemental drinking water from the Water Authority of Dickson County. The Bon Aqua-Lyles UD has requested two Drinking Water State Revolving Fund (DWSRF) Loans to complete this project. The total estimated project cost for the Phase I is \$2,500,000. A DWSRF loan in the amount of \$2,500,000 has been requested for DWSRF Loan Number 2006-070. The total estimated project cost for the Phase II is \$2,500,000. A DWSRF loan in the amount of \$2,500,000 has been requested for DWSRF Loan Number 2006-071.

Attached is an Environmental Assessment containing detailed information supporting this action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed. If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Mr. Sam R. Gaddipati, Manager  
State Revolving Fund Loan Program  
Tennessee Department of Environment and Conservation  
Life & Casualty Tower, 8th Floor  
401 Church Street  
Nashville, TN 37243

or contact him by telephone at (615) 532-0445 or by e-mail at [sam.gaddipati@state.tn.us](mailto:sam.gaddipati@state.tn.us).

**ENVIRONMENTAL ASSESSMENT**  
**Bon Aqua-Lyles Utility District (Hickman County), Tennessee**  
**Project Nos. DWSRF 2006-070, and DWSRF 2006-071**

**September 12, 2006**

**A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS**

The Bon Aqua-Lyles Utility District (UD) has completed the facilities plan entitled "Engineering Report, Water System Improvements for the Bon Aqua-Lyles Utility District of Hickman County, Tennessee" dated June 2006. The facilities plan provides recommendations for two phases in order to upgrade the existing water treatment facilities serving the Bon Aqua-Lyles UD in Hickman County, Tennessee. Phase I of the water system improvements consists of upgrading the existing water treatment plant (WTP) by adding membrane filtration units, replacing the existing wash water pump, and adding a new chemical feed/laboratory building. Phase II of the water system improvements consists of installing approximately 26,000 linear feet (LF) of 10-inch, 12-inch, and 16-inch water transmission lines and a 900-gallons per minute (gpm) pump station in order to purchase supplemental drinking water from the Water Authority of Dickson County. The Bon Aqua-Lyles UD has requested two Drinking Water State Revolving Fund (DWSRF) Loans to complete this project. The facilities planning area and project locations are indicated on Figure No. 1 of the Environmental Assessment. Descriptions of the proposed facilities and actions included in this project are listed below:

**TREATMENT FACILITIES**

Phase I of the water system improvements consists of upgrading the existing WTP by installing additional membrane filtration units to polish the existing plant's finished water, replacing the existing wash water pump, and adding a new chemical feed/laboratory building. The capacity of the WTP will not increase and, therefore, will remain at 1.3 million gallons per day (MGD).

**TRANSMISSION LINES**

Phase II of the water system improvements consists of installing approximately 26,000 LF of 10-inch, 12-inch, and 16-inch water transmission lines and a 900-gpm pump station in order to purchase supplemental drinking water from the Water Authority of Dickson County. The connection to the Water Authority of Dickson County's system will occur at the Hickman/Dickson County line on State Route (SR) 46. The 16-inch transmission line will traverse SR 46 to the intersection with SR 100 and SR 7. The transmission line will reduce to a 12-inch line following SR 7 and connect to the existing 10-inch transmission line at the new Hickman County High School. The 10-inch transmission line will follow SR 100 to the existing Highway 100 Elevated Water Storage Tank and connect to the existing 10-inch transmission line at the East Hickman Elementary School.

**FUNDING STATUS**

The facilities described above comprise the scope of the DWSRF Loan Numbers 2006-070 and 2006-071 scheduled for funding in fiscal year 2007. The estimated project costs are summarized in the following tabulation:

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<u>PROJECT CLASSIFICATIONS</u>	<u>COSTS (\$)</u>	
	<u>DWSRF 2006-070</u>	<u>DWSRF 2006-071</u>
Administrative & Legal	15,000	10,000
Land Costs & Appraisals	-0-	22,500
Planning Fees	15,800	-0-
Design Fees	117,500	111,000
Engineering Basic Fees	7,500	5,500
Other Engineering Fees	25,000	18,500
Resident Inspection	85,000	95,000
Construction	1,085,000	1,497,400
Equipment	975,000	400,000
Miscellaneous	2,500	1,500
Contingencies	171,700	338,600
<b>TOTAL</b>	<b>2,500,000</b>	<b>2,500,000</b>
DWSRF Loan	2,500,000	2,500,000

**B. EXISTING ENVIRONMENT**

The Bon Aqua-Lyles UD's Planning Area is located in northeastern Hickman County in middle Tennessee. Existing environmental features are described below:

**SURFACE WATERS**

Surface waters in the Phase I project area include the North Fork of Mill Creek and its tributaries.

Surface waters in the Phase II project area include Bristol Cave Branch, Big Spring Creek, and their tributaries. These surface waters are in Lower Duck River Watershed.

**GROUNDWATER**

Geology in the eastern Hickman County area is comprised mainly of sedimentary rock formations. Several large springs are located in the Bon Aqua-Lyles UD's Planning Area. The largest of these is McFarland Spring which has a safe yield capacity of 230 gpm and is located approximately one and one-half miles to the west of the Bon Aqua-Lyles UD's WTP.

**SOILS**

Soils in eastern Hickman County are of the Bodine-Mountview-Dickson, Baxter (Fullerton)-Mountview-Dickson, and Arrington-Lindell-Egam-Armour Soil Associations. The Bodine-Mountview-Dickson Soil Association is characterized as hilly and steep, excessively drained,

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cherty soils from limestone, thin loess, and shale. The Baxter (Fullerton)-Mountview-Dickson Soil Association is characterized as hilly and rolling, well-drained, cherty and clayey soils from limestone and undulating, well-drained, silty soils from thin loess and limestone. The Arrington-Lindell-Egam-Armour Soil Association is characterized as well-drained and moderately well-drained loamy, clayey, and silty soils of the bottoms and terraces of the Highland Rim.

**TOPOGRAPHY**

Situated in the western Highland Rim Area in middle Tennessee, elevations throughout the Bon Aqua-Lyles UD's Service Area vary between approximately 490 feet above Mean Sea Level (MSL) in the Pinewood community to approximately 980 feet above MSL along SR 100 adjacent to the Tennessee Department of Environment and Conservation's (TDEC) fire observation tower. Much of Bon Aqua-Lyles UD's Service Area varies in elevation from 800 feet above MSL to 980 feet above MSL.

**OTHER ENVIRONMENTAL FEATURES**

No wild or scenic rivers or unique agricultural, scientific, cultural, ecological, or natural areas were identified in the Bon Aqua-Lyles UD's Planning Area.

**C. EXISTING WATER FACILITIES**

Bon Aqua-Lyles UD provides water service to approximately 9,000 customers, mostly residential. The raw water source for the Bon Aqua-Lyles UD is the Piney River at River Mile 13.4. Raw water is transported to the WTP through a 12-inch transmission line. The 1.3 MGD WTP, consisting of conventional filters, was originally built in 1997 and uses a 70,000-gallon backwash lagoon to provide treatment for the backwash water. The distribution system was upgraded in 2001. The transmission and distribution system consists of one pump station with capacity of 600 gpm and approximately 130 miles of pipelines ranging in size from 1 to 12 inches in diameter. Three tanks provide 1.3 million gallons of water storage.

**D. NEED FOR PROPOSED FACILITIES AND ACTIONS**

The Bon Aqua-Lyles UD needs to implement improvements to the water system in order to consistently meet finished water turbidity limits of 0.3 nephelometric turbidity units (NTU) and to provide an adequate amount of safe drinking water to its customers. The facility currently operates above 80 percent of its 1.3 MGD design capacity during peak flows.

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**EXISTING AND PROJECTED FACILITY CONDITIONS**

	<u>POPULATION EXISTING (2006)</u>	<u>POPULATION PROJECTED (2026)</u>
Service Area	8,868	15,524
Percent Served	82%	88%
Planning Area	10,800	17,600
Planning Area excluding Service Area	15%	10%
Total Population Served	8,892	15,422

<u>WATER NEEDS (gallons per day)</u>	<u>EXISTING (2006)</u>	<u>PROJECTED (2026)</u>
Residential	441,900	1,106,500
Commercial/Industrial	59,100	365,500
Loss	230,000	568,000
<b>TOTAL</b>	<b>731,000</b>	<b>2,040,000</b>

The Bon Aqua-Lyles UD plans to meet their customer's demand beyond its capacity of 1.3 MGD by purchasing supplemental water from the Water Authority of Dickson County.

**E. ALTERNATIVES ANALYSIS**

Several alternatives were evaluated in the June 2006 facilities plan. Discussions of the evaluation of these alternatives and the recommended plan are following:

**NO-ACTION**

The "No-action" approach is not a viable alternative. The Bon Aqua-Lyles UD must meet the finished water turbidity requirements. The facility currently operates above 80 percent of its 1.3 MGD design capacity during peak flows allowing the existing facility to continue to violate the turbidity standards. Therefore, this alternative is rejected.

**EXPAND EXISTING FACILITIES**

This alternative consists of expanding the capacity of the existing WTP to 2.6 MGD, upgrading the raw water intake structure, and installing approximately 15,100 LF of 12-inch raw and finished water transmission lines. This alternative does not protect the Piney River, is not cost-effective, and is rejected.

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**ABANDON EXISTING TREATMENT PLANT AND PURCHASE ALL WATER FROM THE WATER AUTHORITY OF DICKSON COUNTY**

This alternative consists of abandoning the Bon Aqua-Lyles UD's WTP raw water intake, raw water transmission lines, WTP, Spotlight Road Booster Station, and Pinewood Road Water Storage Tank and installing a new 1,800-gpm booster station, approximately 26,000 LF of 12-inch and 18-inch finished water transmission lines, and a new 500,000-gallon water storage tank in order to purchase water from the Water Authority of Dickson County. The facilities are fairly new and the Bon Aqua-Lyles UD does not want to totally depend on the Water Authority of Dickson County to provide drinking water to its customers. Therefore, this alternative is rejected.

**IMPLEMENT TECHNOLOGY-BASED IMPROVEMENTS AT THE WATER TREATMENT PLANT AND PURCHASE SUPPLEMENTAL WATER FROM THE WATER AUTHORITY OF DICKSON COUNTY**

This alternative consists of the installation of membrane filtration technology at the existing WTP, the replacement of the existing wash water pump, construction of a new chemical feed/laboratory building during Phase I, and the construction of approximately 26,000 LF of 10-inch, 12-inch and 16-inch water transmission lines and a 900-gpm pump station during Phase II. The facility's capacity would remain at 1.3 MGD. Supplemental water would be purchased from the Water Authority of Dickson County. These improvements would enable the Bon Aqua-Lyles UD to meet the turbidity requirements, be in compliance with capacity requirements, and provide consistent and reliable water needs to its customers. This alternative is the most cost-effective and is selected.

**F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES**

The environmental benefits of this project will be elimination of turbidity violations, compliance with the State and Federal Safe Drinking Water Standards, and provide consistent and reliable water needs of its customers.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these impacts will be required; however, many of these minimization measures will only be temporary. Using the following measures to prevent erosion will minimize impacts on the environment:

1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.
2. Soil or landscaping maintenance procedures will be included in the specifications.
3. The contractor will develop an Erosion Control Plan. It should contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It should include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

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**G. PUBLIC PARTICIPATION; SOURCES CONSULTED**

A Public Meeting was held on August 17, 2006, at 6:45 p.m., local time. The selected plan for water treatment and transmission and user charges were described to the public, and their input was received. This agency is not aware of any unresolved public objections that may have been voiced before or after the public meeting regarding this project.

The annual median household income for the Bon Aqua-Lyles UD is \$32,172. The previous water user rate for the typical residential user (5,000 gallons per month) increased from \$39.49 to \$46.74 per month on August 18, 2006. The total incremental annual cost for this project is \$87.00, which is 0.27 percent of the current annual household median income.

Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development (ECD)
3. TDEC, Division of Air Pollution Control (DAPC)
4. Tennessee Department of Transportation (TDOT)
5. TDEC, Division of Groundwater Protection (DGWP)
6. Tennessee Historical Commission
7. TDEC, Division of Archaeology (DA)
8. TDEC, Division of Natural Heritage (DNH)
9. TDEC, Division of Solid Waste Management (DSWM)
10. TDEC, Division of Water Pollution Control (DWPC)
11. TDEC, Division of Water Supply (DWS)
12. Tennessee Wildlife Resources Agency (TWRA)
13. United States Army, Corps of Engineers (USACE)
14. United States Fish and Wildlife Service (USF&W)
15. Bon Aqua-Lyles Utility District
16. Hickman County
17. Mr. Joe Wauford III, P.E., J.R. Wauford & Company, Maryville, Tennessee

**H. SPECIAL CONDITIONS**

The State Revolving Fund loan agreement will have the following special condition:

The Bon Aqua-Lyles UD shall obtain applicable Section 10/404 Permits from the U. S. Army Corps of Engineers to meet the requirements of wetlands protection and stream-crossing statutes. A letter from the Corps stating that the permits are not needed will obviate this requirement.